

## PREDICT Liberia Overview (2017)

The PREDICT Project of USAID's Emerging Pandemic Threats (EPT) Program aims to identify pathogens of pandemic potential at human-wildlife-livestock interfaces and behaviors of people that enhance the risk from spillover of viruses. The project's long-term goals are to mitigate the risk from spillover by conducting surveillance for novel viruses with zoonotic potential in areas where risk for spillover is highest *and by strengthening in-country capacity to conduct field and lab-based surveillance to detect novel viruses in animals.*

PREDICT activities in Liberia include USAID EPT and Global Health Security Agenda (GHSA) objectives and actions for implementation with a specific focus on identifying potential animal hosts of Ebola virus and other filoviruses, as well as four other priority viral taxa as resources allow: paramyxoviruses, flaviviruses, coronaviruses, and influenza viruses.

### PREDICT LIBERIA: COUNTRY OVERVIEW

#### Project Management

**Implementing Partners:** The Society for Conservation of Nature of Liberia (SCNL), Monrovia, Liberia and EcoHealth Alliance (EHA), New York, USA.

- *PREDICT Liberia Country Coordinator:* Dr. Jim Desmond ([desmond@ecohealthalliance.org](mailto:desmond@ecohealthalliance.org))
- *PREDICT Global Team, Liberia Lead:* Dr. Jon Epstein ([epstein@ecohealthalliance.org](mailto:epstein@ecohealthalliance.org))
- *PREDICT Liberia Country Liaison:* Ms. Emma Lane ([lane@ecohealthalliance.org](mailto:lane@ecohealthalliance.org))

#### Project Management and Communications

PREDICT activities will be managed by the Country Coordinator, Dr. Jim Desmond and a Deputy Country Coordinator (TBD). The Country Coordinator will be responsible for overseeing implementation of all field and lab activities, as well as communication with Government of Liberia partners, the USAID/Liberia team, and the PREDICT Global Team (via EcoHealth Alliance). Dr. Epstein is based at EcoHealth Alliance in NY and provides programmatic and budgetary direction; partner communication; and technical input into field, lab, and data analysis activities. He also ensures country activities are coordinated with those of the Global PREDICT program. The Country Liaison (CL) is based at EHA and ensures regular communication and information flow between the PREDICT Global Team and the Country Coordinator. The CL also supports administrative and reporting activities. The in-country implementing partner for PREDICT is the Society for the Conservation of Nature, Liberia (SCNL). SCNL has hired a field team of six field technicians, two social scientists, and three drivers. Permission to sample wildlife was obtained from FDA. Ethical review of PREDICT behavioral surveys is currently pending at the National Ethical Review Board under MoH. PREDICT is in the process of expanding its field team and anticipates hiring up to six additional field technicians, three drivers, and an administrative assistant in quarter three of 2017.

#### List of PREDICT partners:

- Ministry of Agriculture (MoA), Liberia
- Ministry of Health (MoH), Liberia
- Forestry Development Authority (FDA), Liberia
- Liberian Institute for Biomedical Research (LIBR)
- National Reference Laboratory (NRL)

- Food and Agriculture Organization (FAO)
- Preparedness & Response (P&R)
- Arcelor Mittal, Inc., Buchanan, Liberia

### **Operationalizing PREDICT Capacity Strengthening Plans**

Communication processes have been initiated with Ministry of Agriculture (MoA); Ministry of Health (MoH), Forestry Development Authority (FDA), the National Public Health Institute (NHPI), the Liberian Institute for Biomedical Research (LIBR), National Reference Laboratory (NRL), and our EPT-2 partners FAO and P&R. SCNL and EHA will proceed to formalize collaborations with partners (e.g. via MOUs or LOAs) for project implementation and will expand communications to other stakeholders, as appropriate, to strengthen One Health platforms and improve the ease of dissemination of relevant animal, human, epidemiological, and ecological data.

### **PREDICT Liberia Surveillance Plans (2017)**

Build partnerships and initiate concurrent biological sampling of wildlife and domestic animals and behavioral surveillance activities of humans (*PREDICT will not be collecting biological samples from people*) at pathways for disease emergence, amplification, and spread and evaluate opportunities for expansion of activities for in-depth targeted and longitudinal surveillance in 2017-2019.

PREDICT will work in three types of environments in Liberia: pristine forests with no history of Ebola cases; villages or disturbed areas with low-moderate incidence of Ebola during outbreak; areas with high case incidence during outbreak.

### **Potential sampling locations:**

- Lofa County – Foya & Voinjama districts; Wenegizi Forest
- Montserrado County – Central Monrovia & St. Paul's River Districts
- Margibi County – Kakata, Firestone & Mamba Kaba Districts
- Bong – Suakoko, Panta & Kpai Districts
- Grand Cape Mount – Tewor, Gola Konneh & Gowular Districts
- Grand Bassa County – Buchanan District
- Nimba County – Yekepa in Yamein District

### **Sampling goals**

- ANIMALS: Wildlife (e.g. bats, rodents & nonhuman primates) and domestic animals (e.g. goats, pigs, dogs, cats) in pristine forested areas (no reported Ebola cases) and in areas that has been deforested and had low-moderate incidence (villages and agricultural sites) or in and around communities that had a high EBV incidence. Targeting 600-700 animals per month (relative numbers of wildlife and domestic animals will vary depending on sampling location). 18,000 animals targeted for sampling through 2019
- PEOPLE: Up to 600 human behavioral risk questionnaires, 150 ethnographic interviews, and 50 focus groups through 2019. *PREDICT will not be collecting biological samples from people.*

### **GoL and other Agency approvals for sampling activities**

PREDICT has obtained necessary permits and permissions to conduct field sampling activities of animals to ensure compliance with all government (permitting and reporting) requirements. Permits or Permissions include:

- Research permits from FDA have been obtained for wildlife; MoA has approved domestic



- animal sampling – no research permits are required.
- Wildlife sample export and import permits obtained by Columbia University from FDA, Liberia and USCDC (CITES permits will be obtained, when necessary) for testing, viral sequencing and advanced pathogen characterization.
- Human subjects ethical approval for behavioral questionnaires from the Liberian National Ethical Review Board (NREB) – currently under review.

### **Laboratory Systems Plan(2017)**

PREDICT implementing partners in Liberia will work with the project's Pathogen Detection team to develop plans for utilization of consensus PCR to detect known and novel viruses with potential pandemic importance, focusing specifically on filoviruses; including the identification of the potential animal hosts of Ebola virus, possible detection of "spill-back" exposure in domestic animals to Ebola virus from infected human cases, and to expand detection of additional filoviruses and other priority viral families (as resources allow) under the broader PREDICT testing paradigm.

To accomplish these goals the PREDICT team is engaging with NRL and LIBR (under the newly formed National Public Health Institute) for testing of livestock samples for Ebola and other filoviruses, and inclusion of staff from the MoA Central Veterinary Diagnostic Laboratory for trainings in biosafety, biosecurity, and PREDICT laboratory assays. As resources allow, PREDICT plans to:

- Identify and procure lab equipment needed to conduct in-country sample testing using consensus PCR assays.
- Identify existing laboratory staff at NRL and LIBR (4-6 individuals) for additional in-country training by the PREDICT global team laboratory partner.
- Establish formal agreements (MOUs) between PREDICT implementing partners and partner laboratory(ies).
- Train laboratory personnel on PREDICT laboratory assays utilizing domestic animal samples; wildlife samples will continue to be tested by the PREDICT partner lab located at Columbia University in the United States (to be exported with all appropriate Liberia FDA permissions and permits).
- Increase the scope of in-country testing as capacity and proficiency is developed over time.

### **Reporting Liberia Laboratory Data and Results**

PREDICT Country Coordinator will report all laboratory findings directly to the Government of Liberia via established points of contacts at the FDA, Ministry of Agriculture, and Ministry of Health. Once clearance to publicly release data is received by each agency, PREDICT will disseminate results to key stakeholders, including USAID. After permission for this release of data is obtained, PREDICT implementing partner(s) will provide data for policy use, improved outbreak response, and to ensure IHR and OIE reporting obligations are met; will distribute data for public release using a globally accessible public portal; and will incorporate analyzed risk-characterization data with clearly documented, cross-cutting risk forecasts. In cooperation with the Government of Liberia and following approval, data generated from the PREDICT Project will be publically released through HealthMap (<http://healthmap.org/predict>), GenBank, and other public databases, in accordance with standard practices for data sharing across all PREDICT-engagement countries. In addition, PREDICT Liberia will coordinate with Sierra Leone and Guinea to improve cross border surveillance, data-sharing and outbreak response.